

Notice of Allowability

Application No.

10/823,648

Examiner

Barbara Summons

Applicant(s)

UEDA ET AL.

Art Unit

2817

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to the RCE and response received 27 September 2006.
2. ☒ The allowed claim(s) is/are 1-8 and 10-16.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 5. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO/SB/08),
Paper No./Mail Date 8/4/06
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☒ Other Title change.

REASONS FOR ALLOWANCE/TITLE CHANGE

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9/27/06 has been entered.

Title Change

2. It should be noted that the Title of the Invention has been changed to:
-- Surface Acoustic Wave Device With A Thicker Partial Bus Bar Area
And Optimal Bus Bar To Electrode Tip Gap --.

Reasons For Allowance

3. The following is an examiner's statement of reasons for allowance:

The Examiner agrees with Applicants argument that the previously combined references (Taniguchi/Noto) are not analogous art due at least to the differences in the thickness of the electrodes normalized by the wavelength λ of the surface acoustic wave propagated by the devices. Therefore, the Examiner has withdrawn the previous rejections. A new search and complete review of all prior art of record found some references that are more analogous to Taniguchi, but that either do not have a small

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enough bus bar to electrode tip gap, or do not have a logical reason to be combined with Taniguchi. The newly cited references and most closely related prior art references previously cited are discussed below.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Discussion of Newly Recited and Previously Recited Prior Art

4. Tsutsumi et al. U.S. 2003/0117039 (of record) and the Patent that issued therefrom U.S. 6,903,626 disclose a SAW device with an electrode thickness of 170nm and wavelength of $2.12\mu\text{m}$ (see the Third Example, and col. 16, lines 15 and 25-27 of US '626) for a normalized film thickness of 8% that is analogous to Taniguchi. However, the non-overlapping (i.e. tip gap) portions $a+b = 2.5\lambda$ (see e.g. Fig. 14, and col. 13, lines 46-61) with dummy electrodes with a length λ such that each tip gap in areas a and b would be 0.25λ , which does not meet the recited "not greater than 0.2λ ".

Watanabe et al. U.S. 6,989,724 discloses a SAW device with an analogous electrode thickness of about 8% (see col. 12, line 27) and with a smaller tip gap in one SAW filter 219 (Fig. 1) than in another SAW filter 208 provided in a larger SAW device that has a balanced/unbalanced conversion function. The small tip gap in filter 219 is as small as the recited gap (tip gap of $0.3\mu\text{m}$ with $\lambda = 2.049\mu\text{m}$ for 0.15λ see col. 12, lines 1-4, 14 and 30-31), but is only provided in the multi-filter device to enhance the

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balance (see col. 7, lines 36-44). Therefore, there is no reason to modify the single device of Taniguchi, especially in view of Watanabe's teaching that small tip gaps may produce other problems such as parasitic capacitances (see the paragraph spanning cols. 15-16). Furthermore, there is no suggestion to modify Watanabe with the thicker partial bus bar areas of Taniguchi since such a modification would change how Watanabe functions and Watanabe has already been optimized, so that such a bus bar modification could be detrimental rather than beneficial.

Takamine U.S. 2003/0155993 is similar to Watanabe but provides a small tip gap in the SAW resonators 223 and 224 (Fig. 1) connected to the balanced terminals of SAW filters 201 and 202. This is done to place the spurious response caused by surface skimming bulk waves (SSBWs) generated at the tip gap, at a specified place in the filter pass band (see section [0131]). Therefore, there is similarly not a reason to modify the single device of Taniguchi. Also, Takamine does not appear to use a tip gap smaller than 0.23λ (see e.g. Figs. 13, 15 and 16).

Similarly Taniguchi et al. U.S. 6,172,580 has a tip gap of up to about 1.0λ (see e.g. the abstract, the last sentence thereof), but does not appear to go smaller than 0.5λ (see Figs. 10-13 and 15 and Table 2).

JP 11-191720 discloses a tip gap of down to $0.15\mu\text{m}$ (see section [0022]), but λ is $0.37\mu\text{m}$ (see section [0015]) so that $0.15\mu\text{m}$ is 0.4λ and larger than the recited size.

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5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Barbara Summons whose telephone number is (571) 272-1771. The examiner can normally be reached on M-Th, M-Fr.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bob Pascal can be reached on (571) 271-1769. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

bs
October 12, 2006


BARBARA SUMMONS
PRIMARY EXAMINER